



# **Savannah River Site (SRS) On-Site STAR Re-certification Review**

**Report from the DOE  
Voluntary Protection Program STAR  
Re-certification Program On-site Review  
November 17-21, 2003**



**U.S. Department of Energy**  
Office of Environment, Safety and Health  
Office of Corporate Performance Assessment  
Office of Quality Assurance Programs

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# **Executive Summary**

This report summarizes the Department of Energy Voluntary Protection Program (DOE-VPP) re-certification evaluation of the Westinghouse Savannah River Company (WSRC) Team by an Environment, Safety and Health (EH), DOE Headquarters assigned VPP Re-certification Review Team (EH TEAM) during November 17-21, 2003. The WSRC Team includes the following partner companies: Westinghouse Savannah River Company LLC, Bechtel Savannah River, Inc., BNFL Savannah River Corporation, BWXT Savannah River Company, and CH2 Savannah River Company. The WSRC Team was originally recognized as a STAR participant within the DOE-VPP in November 2000. This review was directed to the re-certification of their STAR as required after three years of operations in the DOE –VPP.

## **Goals for the DOE VPP Re-certification**

As documented in the DOE-VPP Manuals, a formal onsite review is performed every three years for each STAR recognized site. The WSRC Team has been a STAR since the fall of 2000 and has each year, in February, as required, submitted an annual status report for the DOE Voluntary Protection Program verifying the continuance of the quality of their program. Using a series of self-assessments and routine self-examinations, WSRC Team has continuously improve its STAR program. These assessments have found a pattern where workers and their supervisors and/or managers have sustained a high quality of effort to control and to mitigate safety and health hazards. Employees remain well trained in hazard recognition and actively utilized those skills to identify hazards and/or potential hazards. In fact, the WSRC Team has consistently reported major adjustments and refinements to their initial VPP baseline that have added significant value to their safety program. Better automated systems, consolidated coordinated communications, as well as enhanced training and the adoption of automated tools used successfully at another DOE site have been added by the WSRC Team.

Accordingly, the primary goal of the re-certification team was to verify continued and enhanced STAR performance. The EH Team also noted this as an opportunity to share best practices with the WSRC Team.

## **Evaluation Summaries**

The EH Team, which was onsite November 17-21, 2003, concluded that the WSRC Team met or surpassed all DOE-VPP requirements for STAR re-certification. The EH Team has provided observations for the benefit and use of the WSRC Team.

The WSRC Team recognizes that attaining and sustaining STAR level performance for a large site with multiple layers of management and geographically dispersed personnel is a significant challenge and demands a significant response from all participants. Nevertheless, WSRC Team employees and managers have accepted and met this challenge.

The EH Team focused further on Health Physics, Electrical Safety, Employee Reporting and Key Performance Indicators as precursors for accidents. The large number of contamination incidents required that the team examine the source of these problems. Interviews indicated that clothing and laundry management were at the heart of these incidents, and that the WSRC Team is working to identify and correct the sources of these problems. The efficiency of the every step in the work process, in particular, is being examined to further define the dynamics of these contaminations. The EH Team considered these contamination events not indicative of any major weakness in their over all health physics programs.

In Electrical Safety disciplines the potential weakness noted was the degree of immediate supervision by middle management of individual work packages and their execution. The WSRC Team has indicated that will address this issue.

For Employee Reporting the WSRC Team is employing the Behavior Based Safety (BBS) techniques to improve employee participation and has thus far begun to show improvement. A new computer system is expected on line in January which will better focus attention into key areas of growth.. This system has been piloted successfully and there is high confidence that it will work effectively to resolve this issue.

The BBS process is also being applied in a systematic fashion to develop the data provided in the reporting systems to prepare specific leading indicators for potential accidents. The WSRC Team appears to be moving successfully forward to identify work level accident precursors from this program.



# Introduction

This report summarizes the Department of Energy Voluntary Protection Program (DOE-VPP) re-certification of the Westinghouse Savannah River Company (WSRC Team) by a EH Headquarters Review Team during November 2003. Every three years STAR sites are audited by an EH headquarters-led team that verifies that quality and continuous improvement are actually sustained by the site's VPP participants. Accordingly, a goal was proposed and accepted by the applicant regarding the focus of this review to identify the enhanced portions of the safety program. In effect, this review focused on the learning and growing of the STAR site from its initial baseline of three years ago until now. In addition, the review was intended to perform an accurate validation of their STAR quality. Further, it was agreed to use the established DOE VPP documented procedures in the DOE VPP manuals to provide the guidance for its conduct and therefore, the site was evaluated against the program requirements contained in U.S. Department of Energy Voluntary Protection Program document, DOE-VPP Part I: Program Elements, DOE/EH-0433, validating its success in implementing the tenets of the DOE-VPP.

# Savannah River Site Overview

The SRS is owned by DOE and operated by an integrated team of contractors led by WSRC. The site is located approximately 25 miles southeast of Augusta, Georgia, and covers 198,344 acres (310 square miles), encompassing parts of Aiken, Barnwell, and Allendale counties in South Carolina, and bordering on the Savannah River. The site was constructed in the early 1950s to produce basic materials used in national defense programs. Since the early 1990s, facility operations have focused on national security work, environmental cleanup and waste management, and economic development and technology transfer initiatives.

The current Savannah River Site (SRS) mission involves:

- recycling and reloading tritium for the weapons stockpile;
- environmental cleanup and waste management;
- special nuclear materials storage, research and development, and technology transfer; and,
- disposition of nuclear materials and facilities.

The principle hazards include:

- Radiation
- Chemical
- Electrical/ Industrial

# **Westinghouse Savannah River Company Team**

WSRC is responsible for the site's nuclear facility operations; Savannah River Technology Center; environment, safety, health, and quality assurance; and all of the site's administrative functions. The integrated team of contractors also includes Bechtel Savannah River, Inc. (BSRI), responsible for environmental restoration, project management, engineering, and construction activities; Babcock & Wilcox (B&W) Savannah River Company, responsible for nuclear materials management; British Nuclear Fuel Limited (BNFL) Savannah River Corporation, responsible for the site's solid waste programs, and CH2SRC, responsible for facility dismantling and decommissioning. About 11,500 people are employed by the WSRC Team, making it one of the largest employers in South Carolina. The WSRC Team began investigating participation in the DOE-VPP program in 1993. Throughout this three-year period, the site participated in a broad DOE-VPP's Outreach Program. The WSRC Team represents about one-third of the worker population that participates in the DOE-VPP. It is thus the largest and probably the most complex DOE-VPP STAR facility in DOE.

# Objectives for the Re-certification Team

The primary EH Team objective was to observe and to learn how WSRC Team managers, workers, and subcontractors manage safety as an end in itself. The EH Team wanted to understand how the WSRC Team actually controls work to ensure that work is completed safely. It sought to understand how closely the self-assessments and other reports compare with actual activities.

Having accepted this challenge to maintain STAR quality performance, the WSRC Team has habitually elected the establishment of specific objectives. Using the DOE Integrated Safety Management System (ISMS) as the mandated “corporate” safety and health structure for all DOE sites, the WSRC Team utilized the five core functional areas of ISMS as guidance for the initial establishment of their VPP criteria or objectives.

Because SRS is a nuclear work site having many special materials and processes, consideration is always taken in regard to the rigor and control that must be maintained for a site of this nature to operate safely without endangering the workers, the public or the environment. Accordingly, the EH Re-certification Team effort focused on their consistency of STAR performance over the past three years in as many parts of the site as possible in the short time allowed. The EH Team reviewed the integration of VPP elements, ISMS functional areas, BBS and the annual site generated performance objectives as they have sustained the STAR. The EH Team’s objectives were aimed at the impact of these multiple efforts on safety and health in their many and varied work places.

## Integration of Safety Management

**Legitimacy/Authenticity** - the history of the past three years of STAR performance validates an authentic coordinated and thorough program to manage safety and health. Their program has achieved credibility because it has succeeded and sustained STAR during this time period.

**Impact** - evidence of visible influence of the STAR are manifest in the operations in the work places, in corporate decisions, in relationships, in documentation and in the work and surrounding community.

**Mechanisms** - the operating procedures, processes, and systems for safety and health function to promote and develop safety and health in the work place. Continuous improvement is visible in this infrastructure since the award of STAR.

**Growth** - continuous improvement is an integrated set of disciplines shared among all participants and remains measurable and visible.

**Culture** - attitudes and private values remain sufficient to promote and deliver a high quality and safe work place. Focus remains on the necessity to sustain dignity and safety for each participant.

# Observations

The EH Team was onsite November 17-21, 2003 to evaluate whether the WSRC Team had successfully met their challenge and accomplished the goal of sustaining and enhancing the five tenants of VPP. The EH Team focused their efforts on determining the current level of continuous improvement at WSRC as compared to the past levels of performance noted at other STAR sites. As stated earlier in this report, the criteria or objectives that the EH Team used were developed by the WSRC Team when they initially achieved their STAR three years ago. During this visit, the EH Team interviewed 120 randomly selected employees from across the Savannah River Site. This sample provided an excellent cross-section of personnel with a host of different responsibilities and missions. In addition, the EH Team had the opportunity to discuss enhancement of the entire WSRC Team VPP with selected managers and/or supervisors. The EH Team utilized briefings, employee interviews, work place walk downs and document reviews to reach their final conclusion.

The EH Team found that the WSRC Team has a comprehensive and aggressive safety and health program. Safety is regarded now as a value, rather than a priority, because as they express it, “priorities change.” The greatest concern among the workers and managers was shown to be the fear of complacency or the inability to keep refreshing their program. They counter this fear by being innovative, risk-taking, seekers of the best programs available that they can examine, test and install. Their common goal remains as it has since the original VPP certification – “continuous improvement.” The changes that they have made since their original certification are a mixture of adaptations, modifications and in some cases, elimination of elements and procedures that were either redundant or less effective than desired. Their approach to safety programs is pragmatic and based on generating self-evident value across the entire population of the site.

## Interviews

Employee interviews revealed an improved level of employee involvement since the award of the STAR. All interviewees readily understood Stop Work Authority and admitted that they felt comfortable using it. Workers described cases where they had exercised Stop Work Authority and had received full management support. Those employees who hadn’t exercised this authority felt that their management would fully support them if they had to stop work due to a safety concern. Workers understand that they are the first lines of defense to unsafe conditions and that they are empowered to stop work and take corrective action. There were several examples from the interviewee(s) where they had been involved in jobs that required a stop work or a reassessment of the initial job task.

The workers interviewed knew that their actions or reactions to an unsafe condition depended upon the type of condition and facility environment where the unsafe condition was found. SRS is primarily a nuclear work site having many special materials and processes. Consideration must be given in regard to the rigor and control that must be maintained at a site of this nature, to operate safely without endangering the workers, the

public or the environment. It is essential that workers are aware of the known and potential hazards; but more importantly, they must understand what independent hazard corrective actions they can and should take, and what actions require supervisory and/or management decisions. The workers interviewed understood well the limits of their independent ability to take corrective actions.

Overall, employees were very knowledgeable about the site safety program and spoke highly of the benefits of the VPP as well as the Integrated Safety Management (ISM) Program, and the Behavior Based Safety (BBS) process. A number of employees mentioned their involvement in the Automated Hazard Analysis (AHA) process and the positive effect it has had on their work environment. Most employees stated that they feel safer at work than they do at home, due to the emphasis that the WSRC Team places on safety. The EH Team concluded that the WSRC Team has demonstrated that front line workers are effectively involved in work planning, safety committees, Hazard Analysis teams, and the identification of safe work practices.

### **Walk Downs**

The EH Team noted during a number of walk downs at a variety of typical facilities a high standard of safety performance among the different technical disciplines at the site. Work hazards at each of these sites, although in many cases quite different from each other, are being adequately addressed through careful planning, effective supervision, and clear quality controls. In all cases, the appearance of each of these facilities reflected a high state of management control in that all of them were in a high state of cleanliness. In fact, one of the site managers assured the EH Team that, “a clean workplace is a safe workplace.” Deficiencies noted during these walk downs were immediately and thoroughly addressed to the satisfaction of the team. There were no open deficiencies when the EH Team left SRS.

**Continuous Improvement** - The EH Team made an extensive effort to understand worker perceptions of the site safety and health program. To accomplish this, the EH Team interviewed approximately 120 WSRC Team workers to out find what programs and procedures were working and where there were opportunities to improve. While WSRC continues to use safety and health statistics to track injury and illness data, the interview and analysis process provided valuable insights on how to continue improvements started at the onset of their maintenance of the STAR.

## **Documentation**

The EH Team reviewed a variety of documentation, including The Employee Safety Manual (8Q) and other standard safety documentation. The OSHA 300 Logs were also reviewed. The EH Team reviewed the process for recording Occupational Injuries and Illnesses, First report of injury and near-miss reports. The process is accurate and in conformance with approved procedures. The EH Team reviewed the incentive programs to assure that they are not based solely for the reduction or absence of safety incidents.

## **Specific Observations of Interest**

During this review, the EH Team gathered observations that illustrate the scope and depth of the safety culture. This site's safety culture is deeply rooted in historical contributions of the previous operating contractor, Dupont. The WSRC Team has successfully built upon this foundation and refined the impact and scope of management commitment and worker participation that are the core elements of VPP. The WSRC Team has continued the tradition of making safety a part of every job on the site, and has additionally added the systematic and disciplined methodologies of ISM integrated with BBS and recognized through VPP that has enhanced this initial safety culture of a decade or so ago to have achieved and sustained the STAR level quality of performance. Listed below are a few of the characteristic observations noted by the team, and some will require further assessment by the WSRC Team as part of their ongoing effort for continuous improvement:

1. Emergency vehicles responding for a medical emergency have to badge in/out at the facility, which causes a longer response time.
2. Many employees did not know where the 300 log (injury/illness summary) for the previous year is posted.
3. Not all employees recognized SHRINE as a source for Material Safety Data Sheets (MSDSs). Most employees were aware of MSDSs in their work area.
4. When the Training Department was decentralized, safety representation and safety meetings ceased to exist.
5. Many construction personnel were not aware of the BBS process or not as involved as they would like to be (only union stewards make observations).
6. There are some employees that need ergonomic reviews of their work stations.
7. In order to ensure effective outreach and mentoring efforts, a dedicated budget should be developed to facilitate Special Government Employee activities in the surrounding area and within the DOE Complex.

8. A large majority of employees/supervisors/managers interviewed had very positive comments about the WSRC Safety and Health program, such as:
  - Site is family-like in the atmosphere. Crafts tend to help each other in contrast to other worksites where they stick to themselves.
  - Workers feel that they can tell their supervisor that they are not “fit for duty” because of physical or emotional problem without it being held against them. Trust was great.
  - Management is engaged, they listen to the committee. They conduct a lot of drills which help make sure everyone knows what to do during an emergency
  - The safety record of the site was part of the decision to leave local industry and come to the site for a lower wage.
  - Behavioral Safety Process has empowered the working level to observe behaviors and have a voice in the Safety Process.
  - The Safety Program at SR is better than most of the Industrial Safety Programs.
  - SR is a very Safe place to work.
  - Management informs employees of safety issues, statistics, and concerns via newsletters, video presentations, safety meetings, etc.
  - Safety training at SR is excellent.
9. Likewise, there were interviews that had negative comments about the Safety and Health Program. These are:
  - Can’t get safety message to management. They need a system to get word to highest management.
  - Employees are concerned about a RIF, they don’t want to give suggestions to supervisor and give them to the VPP committee instead.
  - If you get injured, no fault of yourself, and you are on restricted duty- you are paid at the rate of the new job which is always at the same, or more likely a lower rate- system is not fair.
  - Dupont had safety incentive programs which have been taken out due to cost. Westinghouse has celebrations over milestones which seem to say that schedule is more important than safety.
  - Schedule pressure on Projects that have an incentive award attached. (Example at H tank farm while removing an item the wind picked up and tore a bag, which spilled out the contents and contaminated the hill.) Management neglected the weather and rushed the job.
  - A job requiring two QA inspectors was delayed because only one was available due to cutbacks. When resumed, the procedure was rewritten to involve only one QA inspector.
  - Too much emphasis is placed on BBS; too many awards/incentives may be reducing emphasis needed in other areas.
  - Many steam leaks in the F Canyon area.
  - Management does not always tell the truth.
  - The Dupont Safety Program was better than the Westinghouse Safety Program.



- Many employees are focusing on lay-off rumors rather than the job.
- Non-skid on many outside steps need to be replaced.
- Dupont emphasized safety more, but WSRC is improving.
- I see no change in the WSRC Safety Program.

The Team also noted three Best Practices. They are:

1. The TROTS (the rest of the story) methodology is an excellent improvement to the BBS program. They recreate the accident and review it to see how a BBS observation would have or have not prevented the accident.
2. The BBS system looks at the number of observations conducted of a group rather than by the group. This shift in emphasis results in an increase in the participation by all groups.
3. One area uses a process called “Stop, Think, Act, Review” or STAR to address any changes or unexpected issues that arise as work commences.

## **Conclusions**

The EH Team is convinced that the WSRC Team is operating and sustaining an effective STAR level VPP program. The EH Team’s principal area of concern was that, in their eagerness to keep their programs fresh and continuously improve, that they not sacrifice the gains they have made in their current programs. The danger may be less of complacency than of shifting the emphasis away from their core safety and health programs. The complacency in this case is that these core programs, which have been so successful, do not need the same amount of focus and energy currently expended on the newer programs.

# Anecdotal Information

Employee interviews provide an opportunity to collect oral accounts of how programs and procedures actually function in the workplace. By collecting such factual details of the functioning of a program, one can better determine the completeness of implementation, as well as the effectiveness of the program in terms of actual application to the workplace. The following anecdotes, quotations and employee suggestions are included here to give the reader an accurate picture of the WSRC Team safety program as described by the workers:

## Anecdotes:

- One employee uses similar safety preparation to operate his private boat to ensure the safety of his guests. He requires them, before boarding, to endure a safety review for boat operations and for their participation with fire-fighting equipment and the use of life jackets.
- When one supervisor was injured in a minor traffic accident because of her habitual inattention while driving to work, her employees encouraged her to use behavior based safety principals to analyze and correct her problem. She accepted the challenge and found herself driving better and safer.
- One employee noted that the office ice machine had failed and the floor was slippery in their break area and made an immediate call to have it repaired. He was surprised to see it back in commission within an hour of his call, and the hazard removed.
- Many employees have developed the habit of carrying on their badge lanyards laminated pictures of their loved ones to remind them why they work so safely.
- One employee gives his son specific safety instructions when he plays on the local playground to ensure he enjoys a safe playtime.
- Many employees use principles they learn through participation in the BBS and monthly safety meetings when completing projects at home, such as yard work and home renovation. They also help their neighbors to complete home projects and mentor them on working safely.
- One employee spoke of how useful safety meeting information is for both on and off-the-job safety. He gave several examples of useful information he had obtained. He explained that one safety briefing taught employees how to remove a broken light bulb by using an uncooked potato. Another example he gave was of information that was sent out telling employees how to set the side mirrors on their vehicles so that their blind spot is reduced. He's tried it on his own vehicle and found it to be effective, and so has shared this information with family and friends.
- More than one employee related that they have changed their work practices due to lessons learned gleaned from injuries, accidents and near misses. For example, employees now use safety knives to remove plastic ties because one of their co-workers was injured while using a pair of scissors to complete this task. It was determined that scissors were not the appropriate tool for the job and a lessons learned bulletin was sent out across the site.

- One employee indicated that site focus has shifted from just looking at injury statistics, to putting a name and face with every injury. Employees are encouraged to share their injury experiences with co-workers in order to help others avoid a similar injury, pain and suffering

#### **Quotations:**

- “I stepped into a Safety Culture that is second to none.”
- “The safety that I have learned at SR, I take home with me”.
- “I like BBS because it is the people in the trenches, not management.”
- “We’re all safety observers, whether we’ve been through BBS training or not.”
- “Safety is kept at the forefront here. I feel safe at work.”
- “Safety is a value here.”
- “It gives me a feeling of security and peace of mind to know that safety is first at SRS.”
- “Safety becomes a habit, both here and at home.”
- “A clean facility is a safe facility.”
- “It’s very reassuring to work at a place where safety is clearly a value.”
- I wouldn’t hesitate to stop a job because I don’t want to see one of my friends get hurt.”
- Safety is just good business. A lack of safety is both expensive and it hurts!”
- “Safety at SRS is much better than at other companies I’ve worked for! Safety is ‘spoken’ on a daily basis.”
- “Safety at SRS? It’s the Best!”
- “At SRS Management is concerned for your safety.”
- “The WSRC safety program is not perfect, but it’s close!”

#### **Employee Suggestions:**

- An employee from F-Canyon suggested that they bring back safety meetings. This person indicated that the Manager holds meetings that focus on safety and other issues, and that they would prefer meetings focused strictly on safety. They also indicated that the employees used to be involved in preparing and presenting safety meeting material, but now the manager does this. They would like to be involved in this once again.
- A construction employee and a material processor both indicated that not all employees wear the required PPE at all times. These employees suggested that enforcement needs to be improved. Also, the material processor indicated there is a problem with some employees entering areas without permission.
- Craft employees don’t always get information on BBS observations. Additional attention should be put on ensuring that this information is passed on to all employees.
- Employees are sometimes “blamed” for injuries. Need to focus on fact-finding, not fault-finding.
- One employee suggested that the site look for new and interesting ways to provide safety information, rather than relying on routine/traditional approaches. This

employee indicated that there is a need to keep things fresh so that employees remain engaged in the safety program.

- A construction foreman indicated that he would like to see construction employees more involved in BBS. Also, a few of the construction employees didn't appear to know what BBS was all about. Apparently, only the union stewards are trained BBS observers at this time.
- One employee indicated that there are no tornado shelters in Central Shops and was concerned that employees in that area have no safe place to go in the event of a tornado. He was told to go jump in a ditch if a tornado approached the area. He suggested that employees in that area need to have a better alternative.
- Another material processor indicated that BBS Observation data does not filter down to the front line employees. This employee suggested that efforts should be made to ensure that all employees receive BBS trending information.
- One employee indicated that while the site managers support BBS in concept, not enough of them are performing observations. She also indicated that sometimes it takes awhile to get safety issues corrected/addressed.
- One construction worker suggested that safety teams should be developed with one employee from each craft, and that these teams should perform weekly walkdowns of the work site, focusing on safety.

## **Team Conclusion**

The EH Team concludes from their onsite review that WSRC has sustained a STAR quality level of performance and recommends that the WSRC Team be recertified as a STAR site.

## Appendix: DOE-VPP Reevaluation Team for the WSRC Team

<b>Name</b>	<b>Organization/Position</b>	<b>Telephone/e-mail</b>
Gentry, Yvonne	Savannah River Operations Off, Off. of Health, Safety and Technical Support, Safety & Occ. Health Mgr. – Safety and Radiation Protection Division	803-952-7153 yvonne.gentry@srs.gov
Bowser, Rex	Headquarters, ES&H, DOE, (EH-31) Occupational Safety and Health Manager	301-903-2641 rex.bowser@hq.doe.gov
Kelley, Dan	Strategic Petroleum Reserve Project Office	504-734-4721 dan.kelley@spr.doe.gov
Kirkland Jones	Dyn McDermott Petroleum Operations Co., Inc.	504-734-4051 kirkland.jones@spr.doe.gov